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January 10, 1991

WILLIAM G. MARLEY, JR., P.E.  
STATE HIGHWAY ADMINISTRATOR

MEMORANDUM TO: Messrs. Dean Proctor; J. A. Dalpiaz; Larry Goode, PE;  
J. M. Lynch, PE; A. D. Allison, II; D. R. Morton, PE;  
Howard Critcher, PE; Calvin Leggett, PE; Al Avant; Doug  
Lane; W. H. Webb, III, PE; Danny Rogers; Wayne Elliott;  
R. W. Spangler

FROM: L. J. Ward, PE, Manager *L. J. Ward*  
Planning and Environmental Branch

SUBJECT: FEASIBILITY STUDY, US 74 Bypass, From US 74 Business  
East of Shelby to US 74 Business West of Shelby,  
Cleveland County, FS 900004

Our staff has completed a feasibility study for the subject proposed project. This brief analysis suggests improvements that would be logical if the project were to be funded.

A copy of our report is attached for your information. Any comments that you have would be appreciated.

RBD/plr

cc: Mr. William G. Marley, PE  
Mr. J. T. Peacock, PE

FEASIBILITY STUDY

US 74 Bypass, from US 74 Business East of  
Shelby to US 74 Business West of Shelby  
Cleveland County  
F. S. 900004

Prepared by  
Planning and Environmental Branch  
Division of Highways  
N. C. Department of Transportation

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Project Planning Engineer

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12/21/90 L. J. Ward  
Date for L. J. Ward, P. E., Manager  
Planning and Environmental Branch

US 74 Bypass, from US 74 Business East  
of Shelby to US 74 Business West of Shelby,  
Cleveland County,  
F.S. 900004

I. DESCRIPTION

This report covers a preliminary study of the proposed upgrading of the US 74 Bypass in Shelby. As shown on Figure 1, this study extends from US 74 Business east to US 74 Business west of Shelby. The project length is approximately 5.5 miles. This US 74 project does not appear in the 1990- 1996 Transportation Improvement Program (T.I.P.).

Previous Study

A previous study of this corridor was completed under the T.I.P. number R-2222 in 1988. The recommendation of this study was construction of additional lanes to the outside of the existing 4-lane pavement. The recommendation for widening to the outside was due to the presence of left-turn lanes utilizing part of the existing median.

II. PURPOSE OF PROJECT

Objective

The study of the US 74 Bypass is not intended to question the need for, or preclude the development of, a Northern Bypass of Shelby as recommended by the Thoroughfare Plan. In the planning period, the Northern Bypass and the upgrading of US 74 Bypass would both be desirable to jointly handle anticipated volumes.

The initial inquiry for F.S. 900004 requested a comparison of two alternatives:

1. A widening of the Bypass to six lanes throughout.
2. Creation of a limited access facility through use of service/frontage roads throughout.

After careful study of aerial photography and field investigations, it was determined that neither alternative alone is as viable an option as a combined alternative.

Existing Route Characteristics

In explanation of the combined alternative above, it is necessary to review the existing conditions. US 74 Bypass appears as a major thoroughfare on the Shelby Thoroughfare Plan (adopted 1979), and as an Expressway or Freeway on the County Functional Classification Plan. This route serves as the major east-west thoroughfare through Shelby.

The studied section of US 74 Bypass is predominantly a 4-lane divided cross section, with 10-foot shoulders and a 30- foot depressed grass

median. There are left-turn lanes provided at NC 226, NC 180, Dekalb Street, Charles Road, Gold Street, and US 74 Business.

From US 74 Business to Grove Street (approximately 0.5 mile east of NC 226) a virtually continuous service/frontage road system is in place. This system is interrupted on the north side near US 74 Business at the Cleveland Mall, however the mall's street network serves the same purpose and therefore would not require alteration. A second service road interruption of 2000 feet occurs near NC 180 on the south side.

Existing development along the bypass consists of dense residential and commercial properties. Commercial development is particularly dense between Hampton Street and NC 226. Development along the project segment that does not have service roads is constructed directly adjacent to the right-of-way limit.

Existing right-of-way on the route is approximately 150 feet in sections without, and 200 feet in sections with service roads.

The road has very good alignment, and is constructed through rolling terrain. Speed limit on the route is predominantly 45 mph, with 55 mph between NC 180 and US 74 Business. There are 6 signals on the route, and they are located at Charles Road, Hamrick Street, Dekalb Street, NC 226, NC 180, and US 74 Business.

#### Traffic Volumes

Current traffic volumes on US 74 Bypass range from a low of 15,200 vehicles per day (vpd) near US 74 Business (east), to a high of 23,100 vpd near NC 226. By the year 2010, it is estimated that these volumes will range from 24,000 vpd to 44,000 vpd, respectively. Present capacity along the 4-lane facility operating under urban conditions is approximately 35,000 vpd.

#### Need for Project

The existing road has safety and capacity problems at this time, and will have more serious problems in the future as growth and development continues. This can be addressed by upgrading US 74 as outlined below.

### III. RECOMMENDATIONS AND COSTS

Upgrades are recommended for the entire 5.5 mile project length, and is broken into two sections:

Section A- from Grove Street to US 74 Business (east)

Section B- from Grove Street to US 74 Business (west)

The current configuration of the US 74 Bypass does not lend itself to any one upgrade for the entire project. The option of continuing the service roads throughout is logical for Section A, however adding service roads on Section B would potentially eliminate the entire development (commercial and residential) fronting on this section. Likewise, creating

a 6-lane pavement on Section A would incur large construction costs and would not provide a noticeably increased level of service over the combined alternative.

The recommended upgrades are as follows:

Section A- Complete the service road system from Grove Street to US 74 Business by providing a 24-foot, 2-lane pavement on the 2000-foot discontinuity near NC 180.

Section B- Construct additional east and westbound lanes by widening symmetrically. This would involve widening 6 feet in the median, and 6 feet to the outside in each direction. It is estimated that this can be completed mainly in existing right-of-way with easements (2.8 miles).

The bridges at NC 18, NC 150, and the Southern Railway all have substandard horizontal clearances underneath. However, it may be possible through narrowing lanes and reduced shoulders to work the upgrades underneath these existing structures. Ideally these bridges should be removed and replaced. The disadvantages of replacement include difficult railroad rerouting, undesirable detours, and a total cost increase of \$2,400,000.

The total estimated cost of the recommended upgrades within the study limits is \$5,300,000, including \$ 4,800,000 for roadway construction, and \$500,000 for right-of-way. Section A (service road upgrade) has a total cost of \$600,000. Section B has a total cost of \$4,700,000. If replacement of the structures mentioned above is deemed desirable, the total cost for Section B rises to \$7,100,000. Cost estimates were prepared by the Preliminary Estimate Engineer and the Right-of-Way Branch.

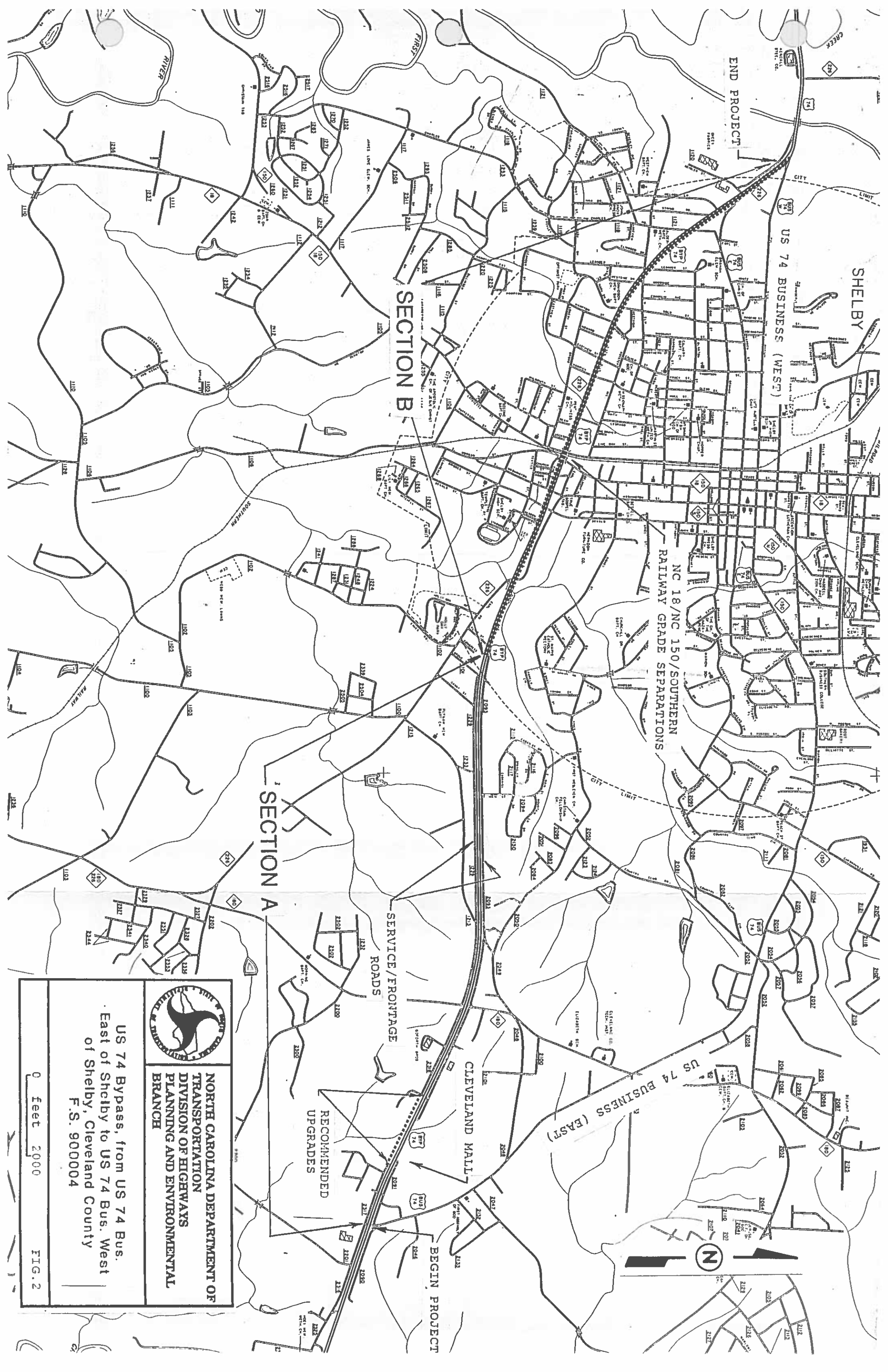
#### IV. OTHER COMMENTS

Major negative environmental impacts of the project are increased noise levels for remaining development. No relocations would be necessitated by the project.

If this project is to be implemented at a future date, all feasible alternatives and their associated impacts will have to be evaluated in a planning and environmental document prior to that time, and a final decision made as to the most appropriate improvement.

MH/rm





END PROJECT

SHELBY

US 74 BUSINESS (WEST)

SECTION B

NC 18/NC 150/SOUTHERN  
RAILWAY GRADE SEPARATIONS

SECTION A

SERVICE/FRONTAGE  
ROADS

CLEVELAND MALL

US 74 BUSINESS (EAST)

BEGIN PROJECT

RECOMMENDED  
UPGRADES



NORTH CAROLINA DEPARTMENT OF  
TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANNING AND ENVIRONMENTAL  
BRANCH

US 74 Bypass, from US 74 Bus.  
East of Shelby to US 74 Bus. West  
of Shelby, Cleveland County  
F.S. 900004

0 feet 2000

FIG. 2

